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PATENT APPLICATION

THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Docket No: Q65416

Akihiro GOTO, et al.

Appln. No.: 09/937,220

Group Art Unit: 1725

Confirmation No.: 6650

Examiner: Geoffrey S. EVANS

Filed: September 24, 2001

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For: ELECTRIC POWER UNIT FOR ELECTRIC DISCHARGE SURFACE TREATMENT
AND METHOD OF ELECTRIC DISCHARGE SURFACE TREATMENT

REPLY BRIEF PURSUANT TO 37 C.F.R. § 1.193(b)

Commissioner for Patents
Washington, D.C. 20231

Sir:

In accordance with the provisions of 37 C.F.R. § 1.193(b), Appellant respectfully submits this Reply Brief in response to the Examiner's Answer dated January 13, 2003. Entry of this Reply Brief is respectfully requested.

Claim Rejections - 35 U.S.C. § 103

The Examiner withdraws the rejection of claims 1-3 under 35 U.S.C. § 103(a) as obvious based on a combination of Magara in view of Garaell.

Claim Rejections - 35 U.S.C. § 102

The Examiner maintains the rejection of claims 1-3 under 35 U.S.C. § 102(b) as anticipated by Magara. The reasons for maintaining the rejection are technically flawed and, upon full consideration of the teachings in Magara, the difference from the present invention should be clear.

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In his comments with respect to each of claims 1-3 in the Examiner's Answer, the Examiner relies upon the illustration in Fig. 16(b) of Magara. Specifically, at page 3, the Examiner points to an alleged teaching that the controller 14 divides the electric discharge current pulse into (1) a first pulse width and a first peak value and (2) a second pulse width and a second current peak. The Examiner then asserts that during the "first pulse width, the current flows through transistor TR₁ with a current value of 1.5 amps (reference to col. 9, lines 34-37) and during the second pulse width set at 2ms (reference to col. 9, line 13), the peak value is 3 amps (reference to col. 12, line 13). The Examiner goes on to allege on page 4 of the Examiner's Answer that "while Magara does not disclose the specific duration of the first pulse width, it must be predetermined by the controller Since Magara uses a predetermined control means ..., a quantity of supply of hard coat material by the emission of the electrode material is a predetermined value that is set by the electrical conditions (i.e. the pulse width and the peak value), the amount of emission onto the workpiece is controlled." The Examiner's hypothesis is in the nature of a statement of inherency, as he presumes that there must be control by controller 14 over two separate pulses.

Contrary to the Examiner's assertion, however, Appellants respectfully disagree with this presumption and the Examiner's assertion. Magara teaches an electric discharge machining operation that relies on a main power supply 10(a) and an auxiliary power supply 10(b). The auxiliary power supply in Magara is only for starting the electric discharge, i.e., to produce a spark (col. 8, line 52). Fig. 16(b) shows schematically for convenience an overlay of current that flows from the auxiliary power supply 10(b) and a current that flows from the main power

supply 10(a). However, In Magara, an initial current from the auxiliary power supply is not controlled. The auxiliary power supply is intended to provide a surge of high voltage to the machining gap 7. Moreover, the current from the auxiliary power supply is not necessary for actual electric discharge surface treatment, as the main power supply (and only the main power supply) is controlled for that purpose.

In Magara, the initial current from the auxiliary power supply that is needed to initiate a spark is set on the basis of resistor R2 and the voltage supply, having a value of 100V-400V. These values are predetermined in Magara, to provide an optimum current value. There is no control of the machining pulse on the basis of the auxiliary power supply because the pulse width that is clearly disclosed in Magara is 2 μ sec, as disclosed at col. 9, line 12 and in Fig. 16(b). Clearly, this is the result of the main power supply; the initial current of the auxiliary power supply is not included. In Magara, the pulse width that is controlled is only the current (pulse width: 2 μ sec) from the main power supply. There is no control of current from the auxiliary power supply.

On the contrary, according to this invention, there is provided a control means that produced a first pulse width and an n-th pulse width which controls the quantity of supply of the electrode to the workpiece. Thus, this invention differs from Magara and is not anticipated by that reference.

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CONCLUSION

For the above reasons as well as the reasons set forth in Appellant's Brief on Appeal, Appellant respectfully requests that the Board reverse the Examiner's rejections of all claims on Appeal. An early and favorable decision on the merits of this Appeal is respectfully requested.

Respectfully submitted,

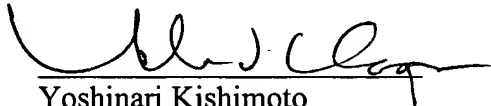
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